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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/008,958	12/05/2001	Miki Sasaki		5427

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EXAMINER

HA, NATHAN W

ART UNIT	PAPER NUMBER
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2814

DATE MAILED: 10/04/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/008,958

Applicant(s)

SASAKI ET AL.

Examiner

Nathan W. Ha

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 February 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.
2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

3. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

4. Claim 1 is objected to because of the following informalities: the element "patters" should be changed to "patterns", in claim 1, last line. Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

6. Claims 1-3 and 8-13 are rejected under 35 U.S.C. 102(a) as being anticipated by Yamaha et al. (US 5,763,936, hereinafter, Yamaha.).

In regard to claim 1, in figs. 1b-1c, Yamaha discloses a semiconductor device comprising:

a dicing region provided on a semiconductor substrate 1;

a plurality of first dummy patterns 4b1, for example, formed on the surface of the substrate within the dicing region; and

a plurality of second dummy patterns 5b, for example, formed above the substrate within the dicing region so as to correspond to the plurality of first dummy patterns.

In regard to claim 2, the first and second patterns are each projected, see fig. 1C.

In regard to claim 3, Yamaha further discloses the dicing region separates a plurality of the chips from each other; see the discussion on col. 4 and last paragraph.

The chips are each having a gate portion 11a and being formed on the semiconductor substrate 1, see fig. 2.

In regard to claims 8-9, Yamaha further discloses the dummy patterns include insulation films 6, SiO₂ deposited on the substrate.

In regard to claim 10, Yamaha further discloses the dummy patterns are arranged at regular intervals, see fig. 1D.

In regard to claim 11, the intervals of the dummy patterns is less than 15 μm since film 6 is 0.5 μm , see col. 5, line 63.

In regard to claim 12, the dummy patterns are formed along the dicing direction X1, see fig. 1H.

In regard to claim 13, the dummy patterns in the dicing area prevent cracking during a dicing or thermal operation; see col. 2, lines 60-67.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaha as applied to claims 1-3 and 10-13 above, and further in view of Applicant's Admitted Prior Art (hereinafter, AAPA).

In regard to claims 4-5, Yamaha discloses all of the claimed limitations as mentioned above. Yamaha, however, does not expressly mention the structure of the

dummy patterns, which have a structure substantially similar to the structure of the gate including a gate oxide film, a polysilicon film, and a SiN film.

The AAPA, fig. 1, disclose a dummy layer in a dicing region that has a structure that substantially similar to the gate structure. It is convenient to have the same structure and materials for the gate and the dummy layer since these regions can be formed at the same time using the same process.

Therefore, it would have been obvious to use the dummy structure as taught by AAPA in Yamaha's device in order to take the advantage as mentioned above.

9. Claims 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaha as applied to claims 1-3 above, and further in view of Morita et al. (US 5,414,297, hereinafter Morita.).

In regard to claim 6, Yamaha discloses all of the claimed limitations as mentioned above except the isolation region is formed by each side of the plurality of the first dummy patterns. Morita, in figs. 6 and 20a, teaches a semiconductor device including a scribe area 2 having an STI structure 44 and a plurality of dummy patterns, the element isolation regions and the dummy patterns being arranged alternatively in order to provide the device chips having an excellence resistance to moisture and capable of prolonging the useful life of a dicing blade without increasing the number of manufacturing steps.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to use the structure of Morita et al. in Yamaha in order to provide the device chips having an excellence resistance to moisture and capable of

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prolonging the useful life of a dicing blade without increasing the number of manufacturing steps.

10. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaha as applied to claim 1-3 above, and further in view of Marita et al., '297.

In regard to claim 7, please see the above discussion regarding to claim 6.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan W. Ha whose telephone number is (703) 305-3507. The examiner can normally be reached on M-TH 8:00-7:00(EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on (703) 306-2794. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and 308-3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

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Nathan Ha

September 23, 2002



OLIK CHAUDHURI
SUPERVISORY PATENT EXAMINER
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